

that occurred in great numbers in certain areas. The habitat as well as behavior of these skaters were very similar to those of *Rheumatobates aestuarius* Polhemus found in Baja California (see Cheng and Lewin, 1971).

LITERATURE CITED

- CHENG, L. AND R. A. LEWIN. 1971. An interesting marine insect, *Rheumatobates aestuarius* (Heteroptera:Gerridae), from Baja California, Mexico. Pae. Ins. 13(2): 333-341.
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SCIENTIFIC NOTE

Records of Rearing of Tachinids (Diptera) from Insects, Mostly in Washington.¹—During the summers of 1965-7 numerous insects, largely Lepidopterous larvae, were collected in the vicinity of Pullman and elsewhere in Washington by Bert A. Freeman and reared at the laboratory in Pullman for determining their tachinid parasites and parasite-host relationships. Because of the illness of Mr. Freeman the project had to be terminated prematurely and was, consequently, incomplete. Considerable unpublished information was obtained, however, and this is presented here.

Various collecting methods were used, but in general larvae of different instars and sometimes pupae and adults were collected under natural conditions and brought into the laboratory where rearing was continued until the parasites emerged and until adult hosts were obtained for purposes of identification or confirmation of their identities. Winter collecting was made under loose bark and in leaf duff on the ground.

Some tachinid pupae do not seem very tolerant of artificial media or holding conditions and will not emerge unless natural conditions are closely simulated. For the most part, however, satisfactory results were obtained by exposing tachinid pupae to temperatures of 3° C for two months and then bringing them gradually out of the cold. For winter holding of tachinid and lepidopterous pupae sawdust from kiln-dried lumber proved the best. It could be made to hold sufficient moisture and, under eastern Washington conditions, very little fungous growth is encountered if the sawdust is changed every three or four weeks.

In the following annotated list common names are given only for insects other than Lepidoptera; lack of such indicates a lepidopterous host. Unless otherwise indicated the host is in the larval stage. Collections and rearing, unless otherwise indicated, were done by Mr. Freeman. Some information based on rearing of insects obtained other than in Washington is included. The order of listing is alphabetical by tachinid parasites. Dates are those of the collections of the hosts, not of emergence of the parasites.

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- Athrycia cinerea* (Coquillett), ex *Prodenia praefica* Grote, Prosser, WA., Sept. 3, 1965.
- Bessa harveyi* (Townsend), ex larch sawfly, *Pristiphora erichsonii* (Hartig), Mt. Spokane, WA., July 24, 1965, and Moscow Mt., near Moscow, IDA., Aug. 6, 1967.
- Bigonicheta spinipennis* (Meigen), ex adult European earwig, *Forficula auricularia* Linnaeus, Pullman, WA., July 5, 1965, 42 parasites obtained from 209 hosts. Ex *Archips cerasivoranus* (Fitch), Puyallup, WA., summer, 1965, reared by E. P. Breakey.
- Blondelia hyphantriae* (Tothill), ex *Celerio lineata* (Fabricius), Pullman, WA., July 16, 1967.
- Compsilura concinnata* (Meigen), ex *Malacosoma disstria* Hübner, Pullman, WA., May 24, 1965, 37 parasites from 347 hosts; Pullman, WA., May 25 and June 1, 1965; Puyallup, WA., June 14, 1965; South Prairie, WA., June 3, 1967. Ex *Malacosoma pluviale* (Dyar), Pullman, WA., June 17, 1965, 6 parasites from 87 hosts. Ex *Stilpnotia salicis* (Linnaeus), Pullman, WA., July 2, 1965, 19 parasites from 69 hosts. Ex *Vanessa cardui* (Linnaeus), Colton, WA., June 18, 1967. Ex *Halisidota argentata* Packard, Enumclaw, WA., June 24, 1967. Ex *Pieris rapae* (Linnaeus), Puyallup, WA., reared by Louis Getzin.
- Doryphorophaga doryphorae* (Riley), ex Colorado Potato beetle, *Leptinotarsa decimlineata* (Say).
- Eleodiphaga pollinosa* Walton, ex adult tenebrionid, *Eleodes hispilabris* Say, Prosser, WA., June 10, 1967; Snake River, near Pullman, WA., March–April, 1967, 10 parasites from about 100 hosts. Ex adult tenebrionid, *Eleodes hovaverrucula* Boddy, reared “in numbers.” Ex adult tenebrionid, *Eleodes* sp., Steptoe Canyon, near Colton, WA.
- Erynnia tortricis* (Coquillett), ex *Archips cerasivoranus* (Fitch), Pullman, WA., June 20, 1965, and July 14, 1967. Ex *Lespeyresia pominiella* (Linnaeus), diapausing larvae, Yakima, WA., Feb., 1967, R. B. Hutt.
- Eusisyropa blanda* (Osten Sacken), ex *Hyphantria cunea* (Drury), Puyallup, WA., June 5, 1965; Orting, WA., Oct. 11, 1966. Ex *Archips argyrospilus* Walker, Orting, WA., Aug. 6, 1967.
- Exorista mella* (Walker), ex *Halisidota maculata* (Harris), last larval instar, Steptoe Butte, WA., Oct. 6, 1966. Ex *Datana ministra* (Drury), Kamiak Butte, near Palouse, WA., Oct. 4, 1966. Ex *Prodenia praefica* Grote, Genessee, IDA., Aug. 23, 1965.
- Euexorista futilis* (Osten Sacken), ex *Malacosoma pluviale* (Dyar), on willow, Pullman, WA., June 17, 1966.
- Gymnoclytia occidentalis* Townsend, ex pentatomid, *Euschistus impictiventris* Stål.
- Hemisturmia tortricis* (Coquillett), ex *Archips argyrospilus* (Walker), Orting, WA., June 4, 1965, and Aug. 6, 1967.
- Hyphantrophaga hyphantriae* (Townsend), ex *Hyphantria cunea* (Drury), Steptoe Butte, near Palouse, WA., Sept. 27, 1965, and Sept. 29, 1966; emerged directly from pupa of host.
- Leschenaultia americana* (Brauer and Bergenstamm), ex *Malacosoma disstria* Hübner, South Prairie, WA., June 14, 1967.
- Lespesia* sp., ex *Papilio rutilus* Lucas, Pullman, WA., Nov. 26, 1965 (?overwintering pupa).
- Lespesia archippivora* (Riley), ex *Vanessa cardui* (Linnaeus), Colton, WA., June

- 18, 1967. Ex *Prodenia praefica* Grote, Prosser, WA., Sept. 3, 1965. Ex *Colias eurytheme* Boisduval, Othello, WA., June 27, 1966.
- Lixophaga variabilis* (Coquillett), ex *Laspeyresia pomonella* (Linnaeus), Wenatchee, WA., Aug. 16-20, 1967.
- Mericia ampelus* (Walker), ex *Peridroma saucia* (Hübner), Orting, WA., July 30, 1966. Ex *Hyphantria cunea* (Drury), Steptoe Butte, near Palouse, WA., Aug. 16, 1965.
- Microphthalma disjuncta* (Wiedemann), ex scarabaeid, *Polyphylla crinita* LeConte, Westport, WA., June 5, 1967, 1 parasite from 24 larvae.
- Nemorilla pyste* (Walker), ex *Archips cerasivoranus* (Fitch), collected as pupa, Pullman, WA., June 20, 1965.
- Phryxe pecosensis* (Townsend), ex *Heliothis phloxiphaga* G. & R., Yakima, WA., June 12, 1966.
- Phryxe vulgaris* (Fallén), ex *Heliothis phloxiphaga* G. & R., Yakima, WA., July 12, 1966, 1 parasite from 21 larvae. Ex *Pieris rapae* (Linnaeus), Prosser, WA., May 19, 1965.
- Tachinomyia* sp., ex *Halisidota maculata* (Harris), on willow, Steptoe Butte, near Steptoe, WA., summer, 1966.
- Tachinomyia similis* (Williston), ex *Malacosoma disstria* Hübner, South Prairie, WA., June 14, 1967. Ex *Stilpnotia salicis* (Linnaeus), Pullman, WA., June 2-4, 1967.
- Thelymyia mathesoni* (Reinhard), ex *Hemerocampa pseudotsugata* McDunnough, Kamiak Butte, WA., Aug. 15, 1966, collected as last larval instar, parasite emerged from pupa.
- Uramya halisidotae* (Townsend), ex *Halisidota argentata* Packard, under Douglas fir on ground after windstorm, Tacoma, WA., June 10, 1966; parasites emerged from last larval instar just prior to pupation.
- Winthemia* (?*rufopicta* Bigot), ex *Peridroma saucia* (Hübner), Pullman, WA., June 17, 1966.
- Winthemia quadripustulata* (Fabricius), ex *Heliothis zea* (Boddie), Grandview, WA., Aug. 28, 1967.
- Zenillia* (?*blandita* (Coquillett)), ex *Hyphantria cunea* (Drury).

A hyperparasite, the chalcidoid *Dibrachys cavus* (Walker), was commonly observed and reared from puparia of *Bigonicheta spinipennis* (Meigen) during the winter months. Incidence of parasitism ranged from 22 to 35 percent, with three to nine larvae occurring in each of the parasitized pupae. Pupae of the tachinid host were common under the loose bark of cottonwoods and poplars during the winter months in the Pullman area.

The above rearing records extend the geographical distribution recorded in the Stone *et al.* (1965 USDA Agric. Handbook, 276) catalog as follows: *Eleodiphaga pollinosa* Walton, Washington, previously recorded from New Mexico and California; *Thelymyia mathesoni* (Reinhard), Washington, previously recorded from New York to Manitoba and Ohio.—MAURICE T. JAMES, *Professor Emeritus of Entomology, Washington State University, Pullman 99163.*